



221042.ST25
SEQUENCE LISTING

<110> THE GOVERNMENT OF THE UNITED STATES OF AMERICA, REPRESENTED
BY THE SECRETARY, DEPARTMENT OF HEALTH AND HUMAN SERVICES
BELL, Adam
WEST, Adam
FALSENFELD, Gary

<120> DNA BINDING PROTEIN AND SEQUENCE AS INSULATORS HAVING SPECIFIC
ENHANCER BLOCKING ACTIVITY FOR REGULATION OF GENE EXPRESSION

<130> 221042

<140> 10/019,386

<141> 2001-12-08

<150> 60/141,728

<151> 1999-06-30

<150> PCT/US00/10509

<151> 2000-04-19

<160> 104

<170> PatentIn version 3.3

<210> 1

<211> 42

<212> DNA

<213> CHICKEN

<400> 1

cccagggatg taattacgtc cctccccgc tagggggcag ca

42

<210> 2

<211> 34

<212> DNA

<213> CHICKEN

<400> 2

gggatgtaat tacgtccctc ccccgctagg gggc

34

<210> 3

<211> 11

<212> DNA

<213> Artificial

<220>

<223> primer

<400> 3

ccatacgtr y

11

<210> 4

<211> 8

<212> DNA

<213> Artificial

<220>

<223> primer

221042.ST25

<400> 4 gggcgggg	8
<210> 5 <211> 12 <212> DNA <213> Artificial	
<220> <223> primer	
<400> 5 tacattaatg ca	12
<210> 6 <211> 42 <212> DNA <213> CHICKEN	
<400> 6 cccatttcgt gccggccgtc cctccccgc tagggggcag ca	42
<210> 7 <211> 42 <212> DNA <213> CHICKEN	
<400> 7 cccagggatg taattaatga aagaaccgc tagggggcag ca	42
<210> 8 <211> 42 <212> DNA <213> CHICKEN	
<400> 8 cccagggatg taattacgtc cctccaaata gctttttcag ca	42
<210> 9 <211> 42 <212> DNA <213> CHICKEN	
<400> 9 acgacggggg atcgccccct ccctgcatta atgtagggac cc	42
<210> 10 <211> 23 <212> DNA <213> CHICKEN	
<400> 10 gtaattacgt ccctcccccg cta	23
<210> 11	

221042.ST25

<211> 42
<212> DNA
<213> CHICKEN

<400> 11
cccaggtcgg taattacgtc cctcccccg c tagggggcag ca 42

<210> 12
<211> 42
<212> DNA
<213> CHICKEN

<400> 12
cccagggatt gcattacgtc cctcccccg c tagggggcag ca 42

<210> 13
<211> 42
<212> DNA
<213> CHICKEN

<400> 13
cccagggatg tacggacgtc cctcccccg c tagggggcag ca 42

<210> 14
<211> 42
<212> DNA
<213> CHICKEN

<400> 14
cccagggatg taattacgtc cctccaaag c tagggggcag ca 42

<210> 15
<211> 42
<212> DNA
<213> CHICKEN

<400> 15
cccagggatg taattacgtc cctccccct a gagggggcag ca 42

<210> 16
<211> 42
<212> DNA
<213> CHICKEN

<400> 16
cccagggatg taattacgtc cctcccccg c tcttgggcag ca 42

<210> 17
<211> 42
<212> DNA
<213> CHICKEN

<400> 17
cccagggatg taattacgtc cctcccccg c taggtttcag ca 42

<210> 18

221042.ST25

<211> 44
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 18
cgcgggctcc gtgagcgggg agggcgcgcc gcgagggggc ggcc 44

<210> 19
<211> 40
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 19
agcgggcgca gttccccggc ggcgccgcta ggggtctctc 40

<210> 20
<211> 44
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 20
caaaaagaca tgtaaatacc atagctatcc agtagaggtc tcaa 44

<210> 21
<211> 47
<212> DNA
<213> Xenopus laevis

<400> 21
accgattcg gggtcggggc cccgggggtg cccgctaagg ggccccg 47

<210> 22
<211> 45
<212> DNA
<213> Xenopus laevis

<400> 22
cccgattcgg ggtcggggcc ccgggggtgc ccgcgggggc cccgg 45

<210> 23
<211> 45
<212> DNA
<213> Xenopus laevis

<400> 23
accgattcg gggtcggggc cccgggggtg cccgcggggg ccccg 45

<210> 24

221042.ST25

<211> 45
 <212> DNA
 <213> Xenopus laevis

<400> 24
 acccgattcg gggtcggggc cccgggggtg cccgcggggg ccccg 45

<210> 25
 <211> 42
 <212> DNA
 <213> Xenopus laevis

<400> 25
 acccgattcg gggtcggggc cccggggccc gcggggggccc cg 42

<210> 26
 <211> 45
 <212> DNA
 <213> Xenopus laevis

<400> 26
 acccgattcg gggtcggggc cccgggggtg cccgcggggg ccccg 45

<210> 27
 <211> 47
 <212> DNA
 <213> Xenopus laevis

<400> 27
 acccgattcg gggtcggggc cccgggggtg cccgctaagg ggccccg 47

<210> 28
 <211> 39
 <212> DNA
 <213> Homo sapiens

<400> 28
 cccaggcctg cactgccgcc tgccggcagg ggtccagtc 39

<210> 29
 <211> 33
 <212> DNA
 <213> CHICKEN

<400> 29
 aggcgcgctt gggagctcac ggggacagcc ccc 33

<210> 30
 <211> 33
 <212> DNA
 <213> CHICKEN

<400> 30
 aggcgcgctt gggagcgccg gaccggagcg gag 33

<210> 31

221042.ST25

<211> 33
 <212> DNA
 <213> CHICKEN

<400> 31
 aggcgcgccg gctccgctcc ggtccggcgc tcc 33

<210> 32
 <211> 34
 <212> DNA
 <213> CHICKEN

<400> 32
 aggcgcgcct gtcattctaa atctctcttt cagc 34

<210> 33
 <211> 33
 <212> DNA
 <213> CHICKEN

<400> 33
 aggcgcgccg cccccaggga tgtaattacg tcc 33

<210> 34
 <211> 45
 <212> DNA
 <213> CHICKEN

<400> 34
 agcccccccc caaagcccc agggatgggg gcagcagcga gccgc 45

<210> 35
 <211> 45
 <212> DNA
 <213> CHICKEN

<400> 35
 ggcggctcgc tgctgcccc atccctgggg gctttggggg ggggc 45

<210> 36
 <211> 25
 <212> DNA
 <213> CHICKEN

<400> 36
 ccgagccggc agcgtgcggg gacag 25

<210> 37
 <211> 40
 <212> DNA
 <213> CHICKEN

<400> 37
 cccgcacgct gccggctcgg cggaccggag cggagccccg 40

<210> 38

221042.ST25

<211> 25
<212> DNA
<213> CHICKEN

<400> 38
cctctgaacg cttctcgctg ctctt 25

<210> 39
<211> 40
<212> DNA
<213> CHICKEN

<400> 39
cagcgagaag cgttcagagg ccttccccgt gcccgggctg 40

<210> 40
<211> 36
<212> DNA
<213> CHICKEN

<400> 40
aggcgcgccg cccaggtgtc tgcaggctca aagagc 36

<210> 41
<211> 39
<212> DNA
<213> CHICKEN

<400> 41
aggcgcgccg aattccagaa atctttgatt tcagatgct 39

<210> 42
<211> 40
<212> DNA
<213> CHICKEN

<400> 42
aggcgcgccg gatcccactc ttagccatta tactgcattg 40

<210> 43
<211> 48
<212> DNA
<213> CHICKEN

<400> 43
tgagcatctt cagggcccct ggattccatt tcagagcttc cggttctc 48

<210> 44
<211> 24
<212> DNA
<213> CHICKEN

<400> 44
atccaggggc cctgaagatg ctca 24

<210> 45

221042.ST25

<211> 107
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 45
aggcgcgccg ggatgtaatt acgtccctcc cccgctaggg ggcagcagcg agcgcccggg 60
gctccgctcc ggtccggcgc tccccccgca tccccgaggg cgcgcct 107

<210> 46
<211> 108
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 46
aggcgcgccg ggatgtaatt acgtccctaa cccgctaggg ggcagcagcg agccgaacgg 60
ggctccgctc cgggtccggcg ctaaccccg c atccccgagg gcgcgcct 108

<210> 47
<211> 104
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 47
aggcgcgccg ggatgtacgt ccctcccccg ctaggggggca gcagcgagcc gcccgggggt 60
ccgctccggt ccggcgcctc ccccgcatcc ccgagggcgc gcct 104

<210> 48
<211> 94
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 48
aggcgcgccc ccagggatgt aattacgtcc ctcccccgct agggggcagc accggtccgg 60
cgctcccccc gcatccccga gccggggcgc gcct 94

<210> 49
<211> 80
<212> DNA
<213> Artificial

<220>
<223> primer

221042.ST25

<400> 49
aggcgcgccg ggggcagcag cgagccgccc ggggctccgc tccgggccgg cgctcccccc 60
gcatccccga gggcgcgcct 80

<210> 50
<211> 89
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 50
aggcgcgcc caaagcccc agggatgtaa ttacgtccct ccccgctag ggggcagcag 60
cgagccgccc ggggctccgc ggcgcgcct 89

<210> 51
<211> 60
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 51
aggcgcgcc ccagggatgt aattacgtcc ctcccccgct agggggcagc aggcgcgcct 60

<210> 52
<211> 52
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 52
aggcgcgcc cgggtccggcg ctccccccgc atccccgagc cggggcgcgc ct 52

<210> 53
<211> 98
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 53
aggcgcgcca aaatacattg cataccctct ttttaataaaa aatattgcat acgttgacga 60
aacaaatttt cgttgcatac ccaataaaaag gcgcgcct 98

<210> 54
<211> 98
<212> DNA
<213> Artificial

<220>

<223> primer

<400> 54

aggcgcgccg ggggggggca cggagcccct cggccgcccc ctcgcgggcg gccctccccg 60

ctcacggagc ccgcgcgag ccgggggga ggcgcgcc 98

<210> 55

<211> 97

<212> DNA

<213> Artificial

<220>

<223> primer

<400> 55

aggcgcgcc ttagctgcat ttgacatgaa gaaattgaga cctctactgg atagctatgg 60

tatttacatg tctttttgct tagttactag gcgcgcc 97

<210> 56

<211> 98

<212> DNA

<213> Artificial

<220>

<223> primer

<400> 56

aggcgcgccc cctcccggcg cgagcgggag cagttccccg gcggcgccgc taggggtctc 60

tctcgggtgc cgagcggggt gggccgata ggcgcgcc 98

<210> 57

<211> 99

<212> DNA

<213> Artificial

<220>

<223> primer

<400> 57

aggcgcgccg gggacccgat tcggggtcgg ggccccgggg gtgcccgcta aggggccccg 60

ggggggccctc ccggcgaaga gggggccatt ggcgcgcct 99

<210> 58

<211> 137

<212> DNA

<213> Artificial

<220>

<223> primer

<400> 58

ggcgcgccgt ggaagagggg tgttgagggc ccaggggctg ccttgccggt gcattggctg 60

cccaggcctg cactgccgcc tgccggcagg ggtccagtc acgagacca gctccctgct 120

ggcgggaaggg cgcgcct

137

<210> 59
 <211> 16
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic

<400> 59

Ala Pro Asn Gly Asp Leu Thr Pro Glu Met Ile Leu Ser Met Met Asp
 1 5 10 15

<210> 60
 <211> 51
 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 60
 cccagggatg taattacgtc cctccccgc tagggggcag caggcgcgcc t

51

<210> 61
 <211> 15
 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 61
 aggcgcgcct gctgc

15

<210> 62
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 62
 aggcgcgcca agctttgtca cagcggaccc caacctatg.

39

<210> 63
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 63

221042.ST25
aggcgcgccc agagctcttt ctccaccact tgtctaagt 39

<210> 64
<211> 39
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 64
aggcgcgccg gtacctcgtg gactcggact cccaaatca 39

<210> 65
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 65
aggcgcgcca tagtagctat acttcaattt tca 33

<210> 66
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 66
aggcgcgccct ttataagagg ttggaacact tgt 33

<210> 67
<211> 51
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 67
ccctattctt ggacgtctgc tgaatctatt ggaattcaca aatggcaatg c 51

<210> 68
<211> 26
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 68
gattcagcag acgtccaaga ataggg 26

221042.ST25

<210> 69
<211> 50
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 69
gactcggact cccaaatcaa caaggacgga ttgcaactga ttgagttttc 50

<210> 70
<211> 25
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 70
ccttgattgat ttgggagtc gagtc 25

<210> 71
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 71
aggcgcgccca agactgaagg agctacccaa gaa 33

<210> 72
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 72
aggcgcgcct ttataagagg ttggaacact tgt 33

<210> 73
<211> 34
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 73
aggcgcgccca gagaacttga ctcattccct acac 34

<210> 74
<211> 48
<212> DNA

221042.ST25

<213> Artificial

<220>

<223> Primer

<400> 74

agaagctggt atgtgcaaca agggagcgat tcattcccag caatatcc

48

<210> 75

<211> 24

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 75

cccttggtgc acataacagc ttct

24

<210> 76

<211> 88

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 76

aggcgcgccg ttgtggggtt tatacgcggt agttgccggt tgggtggcagc aaaatcgatt

60

gcgccaaacc taaagagccg gcgcgcct

88

<210> 77

<211> 83

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 77

aggcgcgcca atcctttgtg tgtaaagacc aggggttgccg cacggcggca gtgaagtctc

60

gtacatcgca gtccggcgcg cct

83

<210> 78

<211> 88

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 78

aggcgcgccc tggttatgtg aacaagggaa cggatgctac cgcgcggtgg cagcatactc

60

ctatatatcg tggcccaaag gcgcgcct

88

221042.ST25

<210> 79
 <211> 88
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer

 <400> 79
 aggcgcgcca cgctgtgcag atttggctat agctaaatgg acagacgatg ccgcgtggtg 60
 gcagtacaat actacatatg gcgcgcct 88

 <210> 80
 <211> 91
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer

 <400> 80
 gccctgatgg cgcagaatcg gctgtacgtg tggaatcaga agtggccgcg cggcggcagt 60
 gcaggctcac acatcacagc ccgagcacgc c 91

 <210> 81
 <211> 60
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer

 <400> 81
 aggcgcgccc ccagggatgt aattacgtcc ctccaaatag ctttttcagc aggcgcgcct 60

 <210> 82
 <211> 88
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer

 <400> 82
 aggcgcgcct gctgaatcag ttgtggggtt tatacgcggg agttgaatat gttgttactc 60
 aaaatcgatt gcgccaacg gcgcgcct 88

 <210> 83
 <211> 102
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer

 <400> 83

221042.ST25

gctgttatgt gcaacaaggg aacggatgct taccgcgcgg tggcagcata ctcctatata 60
tcgtggccca aatgctgcca acttgggggg agcgattcat tc 102

<210> 84
<211> 48
<212> DNA
<213> Mus musculus

<400> 84
gttgtggggg ttatacgcgg gagttgccgc gtggtggcag caaaatcg 48

<210> 85
<211> 45
<212> DNA
<213> Mus musculus

<400> 85
tttgtgtgta aagaccaggg ttgccgcacg gcggcagtgta agtct 45

<210> 86
<211> 48
<212> DNA
<213> Mus musculus

<400> 86
tatgtgcaac aagggaaacgg atgctaccgc gcggtggcag catactcc 48

<210> 87
<211> 47
<212> DNA
<213> Mus musculus

<400> 87
gctatagcta aatggacaga cgatgccgcg tgggtggcagt acaatac 47

<210> 88
<211> 48
<212> DNA
<213> Rattus rattus

<400> 88
ttgtgtgggt taaaacgcgg aagttgccgc gtggtggcag caaaaatc 48

<210> 89
<211> 48
<212> DNA
<213> Rattus rattus

<400> 89
tcctttgcgc gtaaaaacca ggcctgccgc gtggcggcag tgaagtcg 48

<210> 90
<211> 48
<212> DNA
<213> Rattus rattus

221042.ST25

<400> 90
ttgtgtgcac ggggaaatgg atgttaccgc gcggtggcag catactcc 48

<210> 91
<211> 48
<212> DNA
<213> Rattus rattus

<400> 91
tgactatagc tagatggaca aatatgccgc gtggtggcag tacaaccc 48

<210> 92
<211> 48
<212> DNA
<213> Homo sapiens

<400> 92
ggctgtacgt gtggaatcag aagtggccgc gcggcggcag tgcaggct 48

<210> 93
<211> 48
<212> DNA
<213> Homo sapiens

<400> 93
ggttgtagtt gtggaatcgg aagtggccgc gcggcggcag tgcaggct 48

<210> 94
<211> 48
<212> DNA
<213> Homo sapiens

<400> 94
ggttgtagct gtggaatcgg aagtggccgc gtggcggcag tgcaggct 48

<210> 95
<211> 48
<212> DNA
<213> Homo sapiens

<400> 95
ggttgtaagt gtggactcaa aagtggccgc gcggcggcag tgcaggct 48

<210> 96
<211> 48
<212> DNA
<213> Homo sapiens

<400> 96
ggttgtagtt gtggaatcgg aggtggctgc gcggcggcag tgcaggct 48

<210> 97
<211> 48
<212> DNA
<213> Homo sapiens

221042.ST25

<400> 97
ggttgtagtt gtggaatcgg aagtggccgc gcggcggcag tgcaggct 48

<210> 98
<211> 48
<212> DNA
<213> Homo sapiens

<400> 98
ggttgtggct gtggagacgg aaatggccga gaggcggcag tggtgact 48

<210> 99
<211> 14
<212> DNA
<213> Artificial

<220>
<223> Synthetic

<220>
<221> misc_feature
<222> (6)..(6)
<223> "n" is c or t

<220>
<221> misc_feature
<222> (9)..(9)
<223> "n" is c or t

<400> 99
ccgcgnggng gcag 14

<210> 100
<211> 48
<212> DNA
<213> Artificial

<220>
<223> Synthetic

<400> 100
cccagggatg taattacgtc cctccccccgc tagggggcag cagcgagc 48

<210> 101
<211> 18
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<220>
<221> misc_feature
<222> (2)..(2)
<223> Xaa can be any naturally occurring amino acid

221042.ST25

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> Xaa can be any naturally occurring amino acid

<400> 101

Val Xaa Ala Ala Ala Asp Xaa Ala Ala Glu Val Glu Thr Leu Glu Gln
 1 5 10 15

Gly Glu

<210> 102
 <211> 12
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> Xaa can be any naturally occurring amino acid

<400> 102

Asp Leu Xaa Ala Ala Xaa Ala Ala His Leu Arg Lys
 1 5 10

<210> 103
 <211> 16
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic

<400> 103

Gln Ser Gln Pro Ala Ala Ile Ile Gln Val Glu Asp Gln Asn Thr Gly
 1 5 10 15

<210> 104
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic

221042.ST25

<220>

<221> misc_feature

<222> (4)..(4)

<223> Xaa can be any naturally occurring amino acid

<400> 104

Tyr	His	Asp	Xaa	Ala	Ala	Asn	Phe	Val	Pro	Ala	Ala	Phe	Val	Cys
1				5					10					15